428-167. XR 2,057,873 EX

ROSS REFERENCE EXAMINER

Oct. 20, 1936.

E. P. ATWOOD

2,057,873

FLOOR COVERING

Filed Feb. 2, 1933

FIG. 1

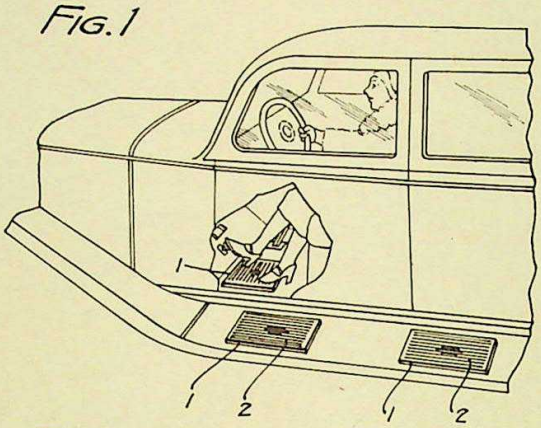


FIG. 5

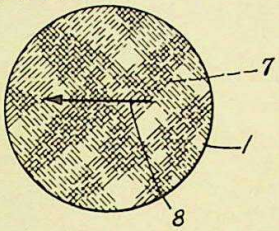


FIG. 7

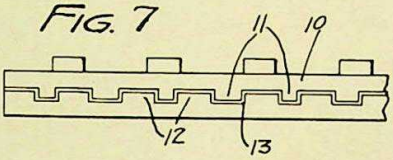


FIG. 2

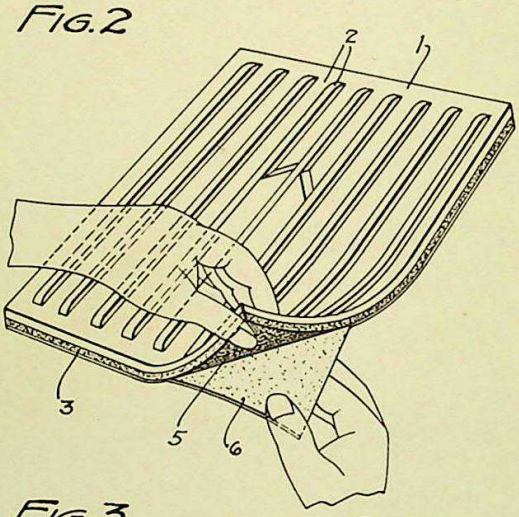


FIG. 6

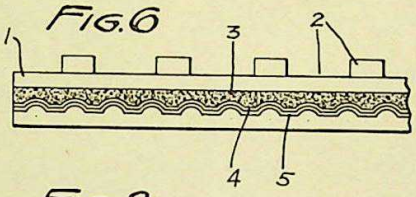


FIG. 8

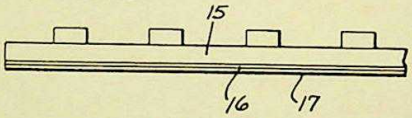


FIG. 3

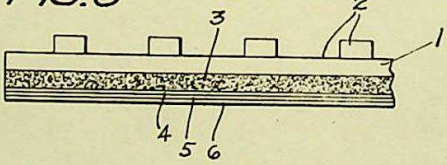


FIG. 9

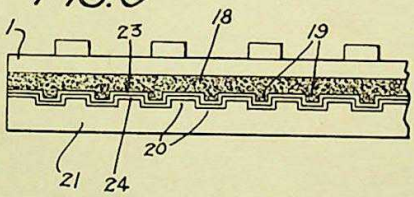
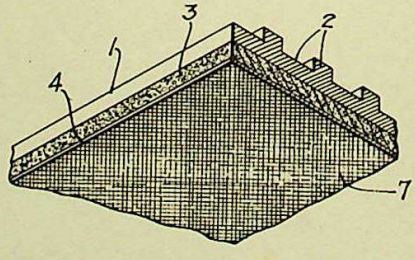


FIG. 4



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UNITED STATES PATENT OFFICE

2,057,873

FLOOR COVERING

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Application February 2, 1933, Serial No. 654,835

7 Claims. (Cl. 154—49)

This invention relates to improvements in floor foot mats and floor covering, and is well adapted for use as an original surfacing material for floors in general, as padding for stairs, and as original surfacing material for running boards of automobiles, but is particularly adapted for covering worn areas of the surfacing material of such boards.

The invention, as an article of manufacture, at present finds its most valuable use in relation to automobiles including its use as a floor covering for the driver's compartment at a point adjacent the throttle where the heel wears the original floor covering, carpet, linoleum or rubber.

To understand the economic gain made by the practice of this invention in relation to the tread surfacing material of automobiles, particularly running boards, it is to be noted that these running boards were originally made of wood and were provided with tread surfacing of linoleum or some other suitable material. This material was attached by nailing, etc. Replacement in this case was comparatively simple because it merely involved the loosening of fastening devices or withdrawal of nails or screws from the wooden board.

When the tread surfacing material became worn in spots, particularly at points nearest the doors, it was common practice to attach a combined metal and rubber plate by means of nails or screws to cover the worn parts. However, at present steel running boards are used and most often rubber tread facing is vulcanized to the steel. The tread surface is usually corrugated. When this tread material becomes worn, it is common practice to replace the entire running board. This sort of replacement is very expensive and only comparatively few will go to such expense to satisfy their aesthetic taste. The only other alternative is to cover the worn parts by other material, and to do this, it is necessary to drill openings in the steel board for the fastening devices. This is also expensive, and in addition rusting eventually occurs at the drilled openings.

Features of the invention include an article of manufacture as a floor mat or floor covering including a compressible rubber facing adapted to conform to inequalities of the surface to which the mat is applied, with the floor-engaging face of soft material coated with a tacky adhesive; the arrangement of the threads of the fabric of the anti-adhesive absorbent layer in some predetermined relation to the edges of the mat and/or to the corrugations of a corrugated floor surface to which the mat is to be applied; the formation of a relieved design upon the floor-engaging face of the mat; and all details of construction disclosed.

Objects, features and advantages of the invention will be set forth in the description of the drawing forming a part of this application, and in said drawing

Figure 1 is a perspective view of an automobile showing applications of the mat of the present invention, respectively to the tread of the running board, and to the floor of the driver's compartment;

Figure 2 is a perspective view of the mat of Figure 1, illustrating the manner of removing the adhesive-protecting cloth;

Figure 3 is an end elevation of the mat;

Figure 4 is a fragmentary perspective view illustrating the biased relation of the threads of the woven fabric, of the anti-adhesive absorbent layer;

Figure 5 is a plan view of a circular mat having a mark for guiding the user in applying the mat to dispose the threads of the anti-adhesive absorbent fabric in predetermined relation to the corrugations of a floor surface;

Figure 6 is an end elevation illustrating how the soft rubber layer of the mat is by applied pressure made to conform to the configuration of inequalities of any character in the floor surface to be covered;

Figure 7 is an end elevation showing application of a modification in which no soft compressible material is used but in which the bottom surface of the tread element has a relieved design registrable with a corresponding design of the floor surface to which the mat is to be attached;

Figure 8 is an end elevation of another modification in which soft rubber is not used and in which the attaching surface is not relieved, but in which tacky non-drying adhesive is used and is covered by a pull-off cloth; and

Figure 9 is an end elevation showing application of another modification, in which soft rubber is used and has a relieved design, adapted to fit a corresponding relieved design of the floor.

In the drawing, the mat is shown applied to various tread surfaces of an automobile. Numeral 1 indicates a sheet of relatively flexible material as the tread layer of a foot mat or floor covering. This material may be of rubber or other suitable foot mat material, in this instance it is assumed to be formed from rubber. The upper surface is relieved as at 2 to provide a

roughened tread surface. The rubber is of that quality most suitable for its intended use. To the under plane surface of the tread layer 1 is suitably secured, as by cement or vulcanizing, a layer 3 of soft rubber. This soft rubber may be of various grades of resiliency and compressibility, and sponge rubber has been found to serve excellently for the purpose herein.

To the outer surface of the soft rubber is applied an anti-adhesive absorbent layer 4. This layer preferably has the form of a woven fabric having rubber stock frictioned therein. Smearing or frictioning can be accomplished in any suitable manner and thereafter the sheet is applied to the soft rubber and the two are vulcanized to provide what may be considered an integral skin layer. In some instances, this woven fabric layer will not be used, but the non-adhesive absorbent coating will be provided by other means.

To the outer surface of this non-adhesive absorbent coating is applied a tacky adhesive of the so-called non-drying type indicated at 5, and protectingly overlying and detachably secured by this adhesive is a sheet 6 of material adapted to be pulled off to expose the adhesive preparatory to adhesively securing the mat or floor covering. When it is desired to apply the mat, it is merely necessary to pull off the protecting sheet of cloth 6, and then to place the mat and apply pressure to its top.

When the woven fabric 4 is used as a facing for the soft compressible rubber material 3, and when the mat is designed for attachment to a corrugated surface of the tread material of a running board of an automobile, for example, I have found that more intimate adhesive contact can be obtained by so directionally relating the threads 7 of the woven fabric to the corrugations as to increase the flexibility of the cloth, so that it can be pressed in between the corrugations. To this end, the cloth is so attached that its threads have a biased or diagonal relation to the rectangular sides of the mat. If the mat is not rectangular, some mark is provided which will enable the user always to place the mat on the surface so that the threads will occupy a biased relation with respect to the corrugations of the floor surface.

Thus, when the anti-adhesive absorbent layer is woven fabric impregnated with a material suitable for preventing absorption of tacky cement, the parts are laid together so that the threads of the fabric are diagonally related to the sides or edges of the rectangular mat.

When the mat is applied to a corrugated surface one of its edges is made parallel with the corrugations so that the threads of the fabric will have a diagonal relation to such corrugations. If the mat is circular, then a mark 8 is used, as shown in Figure 5, to apprise the user of the direction of lie of the invisible threads and instructions are provided so that the user is able to unfailingly properly place the mat, before applying pressure to adhesively attach it. This is accomplished, for example, by putting the mark in parallel relation with, or at a right angle to, the corrugations of the floor surface. Figure 6 shows the mat applied to a corrugated surface.

In Figure 7 has been shown a modification in which soft rubber is not used, but in which the lower surface of the tread layer 10 has a relieved design 11 (either corrugated or of other form) which will register with and fit parts of a floor surface having a like design. The most common design is a corrugated one. When the mat is applied, the corrugations of the surface of the mat are registered with and fitted into the corresponding design elements 12 of the floor surface and the mat is adhesively attached, as in the first instance. As shown in Figure 7, no anti-adhesive absorbent layer is used because no soft rubber facing is used. The adhesive 13 is applied directly to the design surface 12 of the tread layer 10. The adhesive protecting material 6 is used in this form, but, of course, has been removed in this figure. In Figure 8, a modification somewhat like that of Figure 7 has been illustrated, but here there is no design on the floor-engaging face of the tread piece 15. The adhesive is indicated at 16 and the protecting cloth at 17.

In Figure 9 there has been illustrated a modification in which the soft rubber cushioning material 18 has a relieved design indicated at 19, and this design corresponds to and fits into corresponding parts of the design 20 of the floor 21. The anti-adhesive absorbing layer is indicated at 23, and the cement at 24.

Before applying the mat, the surface to which it is to be applied should be thoroughly cleaned. Any suitable surface cleaner can be used.

An important advantage of the use of soft rubber or sponge rubber in a floor covering material or in a mat is that this material acts as a cushion, and because of the formation of a yieldable surface, there is less wear on the covering material.

I claim as my invention:

1. A floor covering composed in part of material capable of being easily compressed, a stretchable woven fabric overlying and secured to the substantially smooth outer face of said compressible material and treated to prevent absorption of tacky adhesive, a tacky adhesive covering said woven fabric, said mat having a mark to assist the user in locating the mat relative to the corrugations of a corrugated surface so that the threads of the woven fabric will be diagonally related to said corrugations during and after application of the mat.

2. A foot mat as an article of manufacture consisting of, a single upper layer of flexible but non-stretchable rubber tread material, a single lower thick layer of sponge rubber vulcanized to said upper layer, a woven fabric layer having rubber stock frictioned therein and secured to and covering the outer surface of said sponge rubber to provide an integral skin layer and non-adhesive absorbent coating but of a quality to allow the sponge rubber to conform to the configuration of a corrugated surface, tacky adhesive of the non-drying type applied to the surface of said skin layer, and a sheet of non-adhesive absorbent material detachably secured to and by the adhesive.

3. A rectangular foot mat as an article of manufacture composed of, a single upper layer of flexible but non-stretchable rubber tread material, a single lower thick layer of sponge rubber vulcanized to said upper layer, a woven fabric layer having rubber stock frictioned therein and secured to and covering the outer surface of said sponge rubber to provide an integral stretchable skin layer and non-adhesive absorbent coating, tacky adhesive of the non-drying type applied to the surface of said skin layer, and a sheet of non-adhesive absorbent material detachably secured to and by the adhesive, the threads of the woven fabric of said first mentioned anti-adhesive absorbent layer being diagonally related to the sides of the rectangular mat.

4. A foot mat consisting of an upper layer of rubber tread material, a thick layer of sponge rubber secured to the bottom of said upper layer, a stretchable skin layer of non-adhesive-absorbent material secured to and covering the bottom surface of the sponge rubber; a facing of tacky adhesive covering the entire bottom of said skin layer, and a sheet of non-adhesive-absorbent material detachably secured by and protectingly covering said adhesive facing.

5. A foot mat consisting of a single upper layer of flexible foot tread material, a single thick lower layer of highly compressible rubber secured to the bottom of the upper layer and adapted by compression to conform to inequalities of a surface to which the mat is applied, a stretchable skin layer of non-adhesive-absorbent material secured to and covering the bottom surface of said sponge rubber, tacky adhesive of the non-drying type applied to the lower surface of said skin layer, and a sheet of non-adhesive-absorbent material detachably secured to and by and covering the adhesive.

6. A foot mat for automobile running boards consisting of two layers one a layer of foot tread material and the other a layer of sponge rubber, said sponge rubber being completely faced with a dressing which is resistant to the absorption of adhesive, and which is stretchable to allow the surface to conform to inequalities, for assuring good adhesive juncture over its entire area.

7. A foot mat consisting of a foot tread layer secured to one face of a layer of sponge rubber which rubber acts as a connector which will conform to the configuration of inequalities of a surface, said sponge rubber layer having secured thereto an outer facing of flexible stretchable non-adhesive absorbent material, the outer face of which material is in turn coated with adhesive, thereby providing a foot mat having a relatively large adhesive coated surface the entire area of which can be made to conform to inequalities of a surface and thus assure good adhesive juncture.

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